
White Paper

Enhancing Supply Chain Resilience:

The advantages of supply chain visibility, best practices, and technology integration



What is Supply Chain Visibility?

Supply chain visibility refers to the ability to track and monitor every stage of the supply chain in real time, from raw material sourcing to production, distribution, and final delivery to the end consumer. It can be broken up between visibility to inventory in motion which is called Real-Time Transportation Visibility (RTTV) and visibility to inventory at rest which is called Real-Time Item Level Visibility (RTILV).



Real-Time Transportation Visibility

Gartner defines RTTV as platforms that provide commercial customers and consumers with real-time insights into their orders and shipments once they have left the warehouse or other type of facility of a brand owner, supplier, contract manufacturer or service provider.



Real-Time Item-Level Visibility

RTILV can be defined as real-time item-level tracking of the inventory in both warehouse or retail locations, enabled by technologies like RFID tags, IoT devices, and blockchain. It provides precise, real-time information on each item as it moves through the supply chain.

The Importance of Supply Chain Visibility

Supply chain visibility is essential in today's complex and interconnected business landscape. It refers to the ability to track and monitor every stage of the supply chain in real-time, from raw material sourcing to production, distribution, and final delivery to the end consumer. This transparency offers numerous benefits that are critical for the efficiency and success of modern supply chains.

Firstly, supply chain visibility enhances operational efficiency by providing insights into inventory levels, order status, and production processes. This allows businesses to optimize inventory management, minimize stockouts, and respond swiftly to changes in demand. Secondly, visibility mitigates risks by identifying potential disruptions or delays in the supply chain, enabling proactive measures to be taken. This is particularly crucial in today's globalized environment where geopolitical and socio-economic events, natural disasters, or unforeseen circumstances can impact the flow of goods.

Supply chain visibility fosters collaboration and trust among stakeholders by facilitating clear communication and data sharing. This collaborative approach leads to better decision-making, improved responsiveness, and ultimately, increased customer satisfaction. As businesses continue to navigate the challenges of a dynamic marketplace, the importance of supply chain visibility as a strategic enabler for agility, resilience, and customer-centric operations cannot be overstated.

Visibility in Today's Globalized and Dynamic Business Environment

Visibility has quickly become a key tool to manage the increased risk and disruptions supply chains are facing. Recently there has been an increasing focus on the inventory at rest, in the warehouses as well as in retail stores.

According to CSCMP's [State of Logistics Report](#) in 2022, the US Business Logistics Cost went up as much as 19.6%, the largest increase to date of which 52% is due to an increase in Inventory Carrying Costs. Filling shelves and miscalculating demand can have catastrophic effects in this economic climate, and ultimately, a negative impact on customer experience.

The global culture is increasingly one of on-demand, single-day delivery, and all of it for free. This has driven the creation of a new category which is called real time inventory visibility (RTILV).

The granular data captured by RTILV is crucial in improving decision-making, optimizing inventory levels, and reducing waste. Understanding the movement of individual items helps in creating more accurate demand forecasts. It allows organizations to analyze trends on a micro-scale, considering variables such as location-specific demands, seasonal trends, and consumer preferences, which can lead to better production planning and inventory management.

Advantages of Supply Chain Visibility



Improved Demand Forecasting

- **Reduced Stockouts and Overstock Situations:** Supply chain visibility helps minimize stock outs by providing insights into inventory levels and demand fluctuations. This prevents lost sales opportunities and ensures that shippers can meet customer demand, positively impacting overall revenue and profitability.
- **Enhanced Accuracy in Production Planning:** Supply chain visibility significantly contributes to enhanced accuracy in production planning by providing real-time insights and comprehensive data throughout the supply chain. Real-time data on customer orders, inventory levels, and market trends result in more accurate demand forecasts which lead to improved planning of production quantities and schedules.

By providing real-time data, fostering collaboration, and enabling proactive decision-making, visibility ensures that production plans align closely with actual conditions and demands, contributing to operational efficiency and customer satisfaction.



Efficient Inventory Management

- **Optimized Inventory Levels:** One of the primary challenges for supply chains is managing inventory effectively. RTILV enables real-time tracking of products as they traverse the supply chain through the use of RFID technology allowing shippers to move beyond traditional barcode scanning. Paired with traceability software, this technology provides a comprehensive view of inventory levels, locations, and even product conditions. Supply chain companies can thus maintain precise control over their stock, ensuring that fast moving items are readily available and reducing the risk of overstock or stockouts.
- **Minimized Carrying Costs:** Clear visibility further enables supply chains to minimize holding costs associated with excess inventory. This includes costs related to storage, insurance, and potential obsolescence. Reduction in holding costs directly contributes to higher profit margins.

Enhanced Supplier Collaboration

- **Real-Time Communication and Collaboration:** Transparency in the supply chain fosters better collaboration with suppliers. Stronger relationships can lead to negotiated pricing, volume discounts, and improved terms, all of which contribute to higher profitability for retailers.
- **Proactive Issue Resolution and Risk Mitigation:** Supply chains are rife with potential disruptions, from unexpected surges in demand to logistical challenges and weather disasters. RTILV empowers supply chains to identify issues before they escalate. By tracking the movement of goods in real time and providing key insights based on the collected data, shippers can pinpoint delays or inefficiencies in the visibility platform, allowing for swift intervention and resolution. This proactive approach minimizes the impact of disruptions, ensuring a smoother supply chain operation.

Faster Response to Market Changes

- **Agility in Adapting to Market Trends:** Customers expect swift and reliable order fulfillment. RTILV allows supply chains to monitor the progress of orders in real time. When integrated with traceability software, this data can be leveraged to identify bottlenecks and streamline fulfillment processes. By optimizing order processing speed, shippers can meet customer expectations for timely deliveries and elevate their overall experience.
- **Quick Response to Disruptions and Changes in Customer Demand:** Supply chains have to be able to quickly react to the myriad of disruptions being thrown at them. With visibility, production planners can make real-time adjustments to disruptions, changing conditions, and customer demand. Whether it's a sudden increase in demand, a delay in supply, or a change in customer preferences, planners can adapt production plans accordingly.

Cost Reduction

- **Lower Operating Costs Through Optimized Processes:** Supply chain visibility is a key driver in lowering operating costs through the optimization of processes. By providing real-time insights and data transparency, visibility allows businesses to identify inefficiencies, streamline operations, and make informed decisions.
- **Reduction in Expedited Shipping and Supply Chain Inefficiencies:** Visibility allows for better route optimization, load planning, and carrier selection in transportation. This optimization minimizes transportation costs by reduction in expedited shipping, reduces fuel consumption, and enhances overall efficiency in the movement of goods.



Challenges in Achieving and Maintaining Supply Chain Visibility

Achieving and maintaining supply chain visibility is essential for optimizing operations and responding effectively to market demands. However, several challenges can hinder the establishment and sustainability of a transparent and interconnected supply chain which further pushes the need for a supply chain visibility solution.

- **Data Quality and Integration:**
Inconsistent or inaccurate data across the supply chain can impede visibility efforts. Integrating data from various sources, including suppliers, manufacturers, and distributors, requires standardized formats and reliable information.
- **Supplier Collaboration:**
Lack of collaboration and information sharing among suppliers can create blind spots. Suppliers may use different systems or may be reluctant to share sensitive data, making it challenging to achieve end-to-end visibility.
- **Complexity of Multi-Tiered Supply Chains:** Supply chains often involve multiple tiers of suppliers, making it challenging to achieve visibility across all levels. Limited visibility at lower tiers can lead to uncertainties and disruptions.
- **Globalization Challenges:**
Operating in a global supply chain introduces complexities related to diverse regulations, time zones, languages, and cultural differences. Coordinating and standardizing processes across borders can be challenging.
- **Security and Privacy Concerns:**
Sharing sensitive information across the supply chain raises concerns about data security and privacy. Protecting against cyber threats and ensuring compliance with data protection regulations are ongoing challenges.
- **Regulatory Compliance:**
Navigating and adhering to complex and evolving regulations, especially in international trade, requires ongoing efforts. Compliance challenges can arise due to changes in trade agreements, customs procedures, or environmental standards.
- **Technological Limitations:**
Legacy systems and outdated technologies can hinder the implementation of advanced visibility solutions. Integrating new technologies, such as IoT devices and real-time tracking systems, may face resistance and compatibility issues.
- **Resistance to Change:**
Resistance to change within organizations can be a significant barrier. Employees, suppliers, and partners may be reluctant to adopt new processes or technologies, slowing down the implementation of visibility initiatives.
- **Real-Time Decision-Making:**
Despite advancements, achieving real-time visibility and enabling instantaneous decision-making throughout the supply chain remains a challenge. This is often due to a lack of organization readiness or supply chain maturity of the supply chain.

Addressing these challenges requires a supply chain visibility solution that offers a comprehensive approach involving technology upgrades, and that can drive collaboration among stakeholders, cultural shifts within organizations, and a commitment to continuous improvement. By implementing the supply chain visibility solution, all these challenges can be overcome. Supply chains will be on the road to a resilient and responsive supply chain that can adapt to the complexities of the modern business environment.

Conclusion

Supply chain visibility is of paramount importance in today's dynamic business landscape. In an ever more disruptive world, supply chain visibility remains the key component that helps companies manage risk and allow them to make better, more informed and faster decisions. As part of this broader supply chain visibility, visibility into inventory at rest or RTILV has become not merely a luxury but a necessity.

Summary of Key Advantages, Best Practices, and Technology Enablers

Supply Chain Visibility is crucial for optimizing operational efficiency, minimizing risks, and enhancing overall responsiveness. Businesses with strong supply chain visibility can make informed decisions, quickly adapt to changes in demand or disruptions, and foster collaboration among stakeholders. It enables accurate demand forecasting, inventory optimization, and streamlined processes, contributing to lower operating costs, improved customer satisfaction, and a resilient supply chain. In essence, supply chain visibility is a strategic enabler for organizations seeking agility, efficiency, and competitiveness in the ever-evolving global marketplace.

Supply Chain Technology Trends

Even with the pandemic behind us, supply chain operations remain volatile, thanks to inflation, fluctuating consumer demand, labor shortages, geopolitical issues, continued logistics woes, and extreme weather. These variables are prompting increased investment in supply chain technology. "Supply chain and operational capabilities will be front and center in 2023," according to **KPMG**. "Importantly, there will likely be greater investment to uplift supply chain planning maturity, automation of warehouse and operational tasks, as well as in gathering better end-to-end supply chain analytics to create enhanced visibility."

Two supply chain predictions from **ABI Research** echo that: "Mounting regulations will push the supply chain and logistics industry to invest in and adopt end-to-end visibility and reporting capabilities," the firm said, adding that adoption of supply chain visibility platforms will continue to enable companies to ensure both compliance and operational competitiveness.

Call to Action for Organizations to Prioritize Supply Chain Visibility for Long-Term Resilience

In this highly disruptive and competitive environment, supply chains that leverage technology to gain full visibility into their supply chains will not only protect their bottom line, grow their top line, be compliant with regulations, but also elevate the customer experience, ensuring long-term success in an ever-evolving industry.

Companies that don't leverage supply chain visibility will stop being competitive and will not have the ability to serve customers in the way they expect.

As 2024 will remain fraught with challenges and disruptions, supply chain companies should look at applying supply chain visibility or extending it in their organization.

BarTender is perfectly positioned to partner with supply chain companies to achieve these goals and make supply chains better.

About the author: Bart De Muijnck is a Strategic Advisor for BarTender. He has been an industry thought leader with over 30 years of supply chain and logistics experience. Bart spent eight years as a vice president of research at Gartner and has worked for international companies, including EY, GE Capital, Penske Logistics and PepsiCo, as well as several tech companies.



About BarTender

BarTender is a brand of Seagull Software, a global leader in real-time, item-level visibility and label management solutions, dedicated to powering the world's most complex supply chains with innovative tools for traceability, authentication, and automated inventory management.

BarTender software enables businesses across all industries to design, manage, print, and automate the production of labels, barcodes, and RFID tags, ensuring seamless tracking and compliance for over 100 billion unique identifiers each year. Leveraging the Track & Trace high-security, scalable SaaS traceability platform, Seagull delivers end-to-end intelligence, harmonizing data to drive operational efficiency, enhance customer experiences, and reduce risk.

Headquartered in Redmond, Washington, with offices across the United States, Europe, Latin America, and Asia, Seagull empowers businesses worldwide to keep their products moving, traceable, and safe.

Learn more at bartendersoftware.com.

